

REMARKS

Favorable reconsideration and allowance of the present application are respectfully requested in view of the foregoing amendments and the following remarks.

Claims 41-74 and 77-99 are currently pending, including independent claims 41, 57, 63, 71, 77, and 91. Claims 1-40 and 75-76 were previously cancelled, while new claims 77-99 are currently being added. Applicants filed a Response After Final in this case on July 16, 2004. Subsequently, an Advisory Action was mailed for this application on August 11, 2004, stating that the Response After Final had been considered but did not place the application in condition for allowance. Accordingly, Applicants are filing a Request for Continued Examination (RCE) with this Amendment.

Independent claim 41, for instance, is directed to a method for joining substrates comprising providing a first substrate and second substrate, each having an upper surface and a lower surface. A continuous thermoplastic tape is positioned adjacent to the first substrate and the second substrate such that the tape is in operative communication with the upper and lower surfaces of the first substrate and with the upper and lower surfaces of the second substrate. This continuous thermoplastic tape is capable of forming both an adhesive bond and a physical bond with the substrates. A seam is formed by bonding the continuous thermoplastic tape to the upper and lower surfaces of the first substrate and to the upper and lower surfaces of the second substrate, and this bonding between the tape and the substrates includes both "physical bonding" and "adhesive bonding."

New independent claim 77, for instance, is directed to a method for joining substrates comprising providing first and second substrates, each having an upper surface and a lower surface, and positioning a continuous tape with respect to the first and second substrates to bring a portion of the tape into contact with the upper and lower surfaces of both substrates, wherein at least a portion of the tape includes first thermoplastic material having a first melting point and second thermoplastic material having a second melting point. In claim 77, the second melting point is higher than the first melting point. The method of claim 77 also includes subjecting the substrates and the tape to predetermined heat and pressure to form a seam joining the first and second

substrates, wherein the predetermined heat is at a temperature at least high enough to cause the second thermoplastic material to flow.

The Advisory Action mailed on August 11, 2004 repeated what was stated at pages 2 and 3 of the Final Office Action of May 18, 2004. Additionally, the May 18, 2004 Final Office Action repeated all of the claim rejections set forth in a previous Office Action mailed on December 16, 2003. Specifically, independent claims 41, 57, 63, and 71 (along with several of the dependent claims) were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,970,079 to Gaylord, Jr., which is directed to a body support binder formed from serially arranged fabric panels whose ends are interconnected by strips of plastic material. Additionally, dependent claims 43, 48-49, 56, 58-61, 67-69, and 72-74 were rejected under 35 U.S.C. § 103(a) as being unpatentable over a combination of five references—Gaylord, Jr., Obayashi, et al., the “eFunda” reference, the “Encyclopedia of Petroleum Products” reference, and the “Lumicor” reference.

Turning first to Applicants' new independent claim 77, Applicants respectfully submit that the method for joining substrates recited in claim 77 (and dependent claims 78-90) is not anticipated by any of the references cited in the Final Office Action, nor would the method of claim 77 have been obvious to one of ordinary skill in the art in view of any of the cited references alone or in combination. By way of example, Gaylord, Jr. fails to disclose or suggest the element in claim 77 requiring at least a portion of the continuous tape to include *first thermoplastic material having a first melting point and second thermoplastic material having a second melting point, wherein the second melting point is higher than the first melting point*. Moreover, Gaylord, Jr. fails to disclose or suggest subjecting first and second substrates and a continuous tape to predetermined heat and pressure to form a seam joining the first and second substrates, wherein the predetermined heat is at a temperature at least high enough to cause the second thermoplastic material (whose melting point is higher than the melting point of first thermoplastic material) to flow. Thus, Applicants respectfully submit that new claims 77-90 patentably define over Gaylord, Jr.

Applicants further submit that claims 77-90 patentably define over Gaylord, Jr. in combination with any of the other references cited in the Final Office Action, individually or collectively, such as Obayashi, et al., the “eFunda” reference, the “Encyclopedia of Petroleum Products” reference, and/or the “Lumicor” reference. Specifically, Applicants respectfully submit that there would have been no motivation or suggestion in the prior art for one of ordinary skill in the art to combine the teachings of any of these five references and arrive at the invention set forth in claims 77-90. In fact, it appears that the only incentive or motivation for combining any of these five references in the manner stated in the Final Office Action stems from the use of Applicants’ disclosure as a blueprint to reconstruct the claimed invention out of isolated teachings in the prior art, which is improper under 35 U.S.C. § 103.

Even if some motivation or suggestion existed for combining any of the references cited in the Final Office Action (Gaylord, Jr., Obayashi, et al., the “eFunda” reference, the “Encyclopedia of Petroleum Products” reference, and/or the “Lumicor” reference), Applicants respectfully submit that claims 77-90 are patentable over any such combination. In particular, any combination of these references does not teach or suggest the elements in claim 77 requiring (1) at least a portion of the continuous tape to include first thermoplastic material having a first melting point and second thermoplastic material having a second melting point, wherein the second melting point is higher than the first melting point as well as (2) first and second substrates and a continuous tape to be subjected to predetermined heat and pressure to form a seam joining the first and second substrates, wherein the predetermined heat is at a temperature at least high enough to cause the second thermoplastic material to flow.

In contrast, Obayashi, et al. discloses a bonding tape having a “melting point” (col. 4, lines 25-31), not a tape wherein at least a portion of the tape includes first and second thermoplastic materials having first and second melting points. In fact, in all of the Examples of Obayashi, et al., the bonding tape is made of a *single* polymeric material which has a *single* melting point (i.e., polyethylene terephthalate bonding tape in Examples 1 and 2, polyvinyl chloride bonding tape in Example 3, and nylon 12 bonding tape or film in Example 4). (Cols. 5-7).

The Examiner has referred several times to column 5, lines 34-50 of Obayashi, et al. in rejecting some of Applicants' dependent claims. This portion of Obayashi, et al. states the following:

For the convenience of **the interposing operation** of the bonding tape, both or either one surface of the bonding tape may have a layer of an adhesive, or both or either one of the end portions of the fabric or fabrics may be coated with a layer of an adhesive. The layer of the adhesive is effective for fixing the locations of the end portions of the fabric or fabrics and the bonding tape in a desired relationship to each other. **However, the adhesive sometimes may decrease the welding effect of the bonding tape.** Therefore, it is preferable that the area of the layer of the adhesive does not exceed 50% of the entire area of each end portion to be welded. The adhesive may be selected from well known adhesives, for example, acrylic resins, epoxy resins and petroleum resins.

(Emphases added). Applicants respectfully submit that this portion of Obayashi, et al.—alone or in combination with any of Gaylord, Jr., the “eFunda” reference, the “Encyclopedia of Petroleum Products” reference, and/or the “Lumicor” reference—does not disclose or suggest the method of claims 77-90 in which (1) at least a portion of the continuous tape includes first thermoplastic material having a first melting point and second thermoplastic material having a second melting point, wherein the second melting point is higher than the first melting point and in which (2) first and second substrates and a continuous tape are subjected to predetermined heat and pressure to form a seam joining the first and second substrates, wherein the predetermined heat is at a temperature at least high enough to cause second thermoplastic material (whose melting point is higher than the melting point of first thermoplastic material) to flow.

In the above-quoted portion of Obayashi, et al., the only “second material,” an adhesive coating that may be an acrylic resin, an epoxy resin, or a petroleum resin, is not really part of the bonding tape and actually **takes away from** the welding effect of the bonding tape. Thus, Obayashi, et al. makes clear that the adhesive coating that may be applied either to its bonding tape or to its fabric end portions helps only in the “interposing operation”—the *placement* of a piece of bonding tape between superposed fabric end portions—not in the later “welding operation.” Obayashi, et al. introduced this

concept in its "Background of the Invention" section, stating that low specific gravity synthetic resins, like acrylic resins, **"are not capable of providing bonding activity for the fabric** even by applying a high frequency wave and/or heat treatment thereto." (Col. 1, lines 28-46). In short, then, this portion of Obayashi, et al. would not render obvious to one of ordinary skill in the art the method of claims 77-90, wherein, among other things, at least a portion of a continuous tape includes first and second thermoplastic materials having first and second melting points, wherein the second melting point is higher than the first, and wherein a seam is formed through heat and pressure wherein the heat is at a temperature at least high enough to cause a second thermoplastic material to flow.

Therefore, Applicants respectfully submit that new independent claim 77—along with new dependent claims 78-90—patentably defines over the references previously cited against claims 41-74. Additionally, Applicants respectfully submit that new independent claim 91, directed to an article, and dependent claims 92-99 patentably define over the references previously cited against claims 41-74.

As set forth in Applicants' Response After Final, filed July 16, 2004, Applicants' claims 41-74 require, among other things, (1) that the continuous thermoplastic tape is capable of forming both an adhesive bond and a physical bond with the substrates and (2) that the bonding (that results in formation of the seam) between the tape and the substrates includes both "physical bonding" and "adhesive bonding." The Final Office Action stated that Gaylord, Jr. discloses "the presence of both adhesive bonding and physical bonding in a seam that joins two substrate[s] using a continuous thermoplastic tape," citing column 4, lines 39-41. (Final Office Action, p. 3). More specifically, the Final Office Action stated the following:

Gaylord, Jr. teaches that the segments are heated and pressed together to fuse the plastic layers together and thereby join the fabric panels (col. 4 lines 21-24). Therefore, the bonding of the plastic layers resulted from attractive forces as defined in adhesive bonding since the two plastic layers are adhered to each other.

(Final Office Action, p. 3).

However, Applicants respectfully submit that Gaylord, Jr. does not teach a combination of “physical bonding” and “adhesive bonding” between a thermoplastic tape and first and second substrates. The portion of Gaylord, Jr. cited in the Office Action refers only to what happens between “segments” of Gaylord, Jr.’s thin plastic film when those segments are heated and pressed together. In other words, rather than pointing to any disclosure from Gaylord, Jr. that describes forming a seam by bonding a continuous thermoplastic tape to the upper and lower surfaces of first and second substrates, wherein the bonding *between the tape and the substrates* includes physical bonding *and* adhesive bonding, the Office Action points only to the joining of segments of plastic material *to each other* (i.e., the joining of the two segments of plastic material 60, 60 shown in Figure 9 of Gaylord, Jr. to form the final joining strip 64 shown in Figure 10 and/or the joining of the two segments of plastic material 65, 65 shown in Figure 11 to form the plastic strip 66 shown in Figure 12).

Applicants submit, then, that Gaylord, Jr. fails to teach a method for joining substrates or an article, according to previously presented claims 41-74, in which a seam is formed by a continuous thermoplastic tape bonded to the upper and lower surfaces of first and second substrates, wherein (1) the tape is capable of forming both an adhesive bond and a physical bond with the substrates and (2) the bonding between the tape and the upper and lower surfaces of the first and second substrates includes both physical bonding and adhesive bonding. In contrast to Applicants’ claims 41-74, Gaylord, Jr. does not teach or in any way suggest that the strips of plastic material it uses to join the serially arranged panels of its thoracic support binder are capable of *both adhesively and physically bonding* to those serially arranged panels. Similarly, when the fabric panels of Gaylord, Jr.’s thoracic support binder are joined, there is no teaching or suggestion that the panels are joined by a seam formed by bonding a continuous thermoplastic tape to the upper and lower surfaces of two substrates, *where that bonding includes a combination of both adhesive bonding and physical bonding*, as Applicants have defined the terms “adhesive bonding” and “physical bonding.” Accordingly, for at least the reasons set forth above, Applicants again respectfully submit that independent claims 41, 57, 63, and 71 patentably define over Gaylord, Jr.

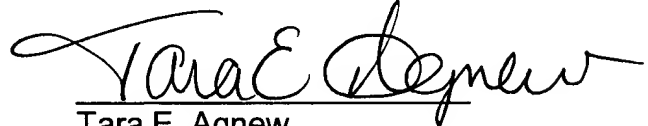
Various dependent claims were rejected in the Final Office Action under either 35 U.S.C. § 102(b) or 35 U.S.C. § 103(a) as being unpatentable over Gaylord, Jr. alone, or in view of U.S. Patent No. 4,410,575 to Obayashi, et al., the "eFunda" reference, the "Encyclopedia of Petroleum Products" reference, the "Lumicor" reference, U.S. Patent No. 5,003,902 to Benstock, et al., U.S. Patent No. 5,591,521 to Arakawa, et al., and/or U.S. Patent No. 6,096,420 to Wilhoit, et al. Applicants respectfully submit that at least for the reasons indicated above relating to corresponding independent claims 41, 57, 63, and 71, dependent claims 42-56, 58-62, 64-70, and 72-74 patentably define over the cited references. However, the patentability of dependent claims 42-56, 58-62, 64-70, and 72-74 does not necessarily hinge on the patentability of independent claims 41, 57, 63, and 71, as some or all of dependent claims 42-56, 58-62, 64-70, and 72-74 may possess features that are independently patentable, regardless of the patentability of claims 41, 57, 63, and 71.

In summary, Applicants respectfully submit that the present claims patentably define over all of the prior art of record for at least the reasons set forth above. As such, it is believed that the present application is in complete condition for allowance and favorable action, therefore, is respectfully requested. Examiner Rhee is invited and encouraged to telephone the undersigned, however, should any issues remain after consideration of this Amendment.

Please charge any additional fees required by this Amendment to Deposit
Account No. 04-1403.

Respectfully requested,

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